

In re Appl. No. 09/144,851

In the Abstract:

Line 6, delete "given" and insert therefor —added—.

REMARKS

Election/Restriction

It is noted that claims 11 and 20 are withdrawn from further consideration by the Examiner. The restriction requirement has been made final.

Rejections under 35 U.S.C. 112

Claims 1-9 and 11-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The scope of the phrases "flavorful acid citrus fruit juice" and "a rapid brewing method" is said to be unknown.

This rejection is respectfully traversed. Since claim 11 has been withdrawn from consideration, it is assumed that this rejection applies to claims 1-10 and 12-19.

Claim 1 has been amended to recite the specific juices included in the term "flavorful acid citrus fruit juice", as recited in the specification as filed at page 1, lines 20-23. Claim 9 has been amended to recite that the process is by using an acetator, as described in the specification as filed at page 8, lines 1-2, page 10, lines 24-26, and page 12, line 6. It is known that brewing in an acetator can produce vinegar in a short period of time. Submitted herewith is a copy of *Microbial Technology*, Henry J. Peppler, Ed., Reinhold Publishing corporation New York, pages 345-359, which notes that using an acetator is a rapid method for producing vinegar.

Art Rejections

Claims 1, 2, 7, and 16 are rejected under 35 U.S.C. 102(b) as being anticipated

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by Seike, Japanese patent 4190780. The Examiner alleges that Seike teaches producing vinegar from citrus fruits such as lemons, whereby the fruit juice is clarified with an enzyme, acid adjusted, sterilized, cooled, alcohol is added, inoculated with acetic acid bacteria and fermented, matured, filtered, and juice from unripe fruit is added.

This rejection is respectfully traversed. In Seike, the juice is treated with pectinase, followed by acid-regulating with sodium citrate, an alkaline agent, and then heat-sterilizing. None of these processes is used in the present invention. As noted in the specification, page 4, middle paragraph, it was found that the addition of an alkali severely affects the flavor of the resulting fruit vinegar. Therefore, Seike teaches away from the herein claimed invention.

Although Seike describes that orange, navel orange, lemon, satsuma mandarin, *Citrus hassakyu*, etc. can be used in this process, the only example is satsuma mandarin juice. This juice contains much less citric acid than does lemon juice, as can readily be seen from the enclosed copy of a translation of *Newest Cyclopedia of Fruit Juice and Fruit Drink*, Asakura Shoten Publishing Co., Ltd., Japan. It is necessary to use much more sodium citrate, an alkaline agent, for lemon juice in Seike, thereby leading to much deterioration of flavor of the product vinegar.

In the present invention, the raw ingredient is citrus juice in which the content of citric acid has been reduced or decreased, rather than neutralized by an alkaline agent. There is nothing in Seike that discloses or suggests this. The process of the present invention is described in great detail in the specification as filed, at page 5, line 21 to page 6, line 12. While juice of satsuma mandarin is sweet, it is inferior in flavor to any of the flavorful acid citrus fruit juices as used in the present invention. Therefore, the juice of satsuma mandarin is

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not included in the present invention.

Moreover, Seike always adds alcohol prior to the acetic acid fermentation. That is, Seike does not disclose subjecting the juice to alcohol fermentation prior to acetic acid fermentation, as in the present invention, although the present invention also includes conducting acetic acid fermentation without carrying out alcohol fermentation. Alcohol fermentation of the juice brings about a right flavor resulting from the amino acids, peptides, etc., which are produced in the alcohol fermentation. Acetic acid fermentation with added alcohol, rather than first conducting an alcohol fermentation, produces a fresh tasting vinegar.

Seike uses heat sterilizing twice in the process, i.e., after acid regulation and after filling the product into containers. The present invention does not use heat sterilizing, but uses only ultra filtration sterilizing. Heating leads to deterioration of the flavor of the product, and thus is to be avoided.

Seike requires a maturing step of from about 5 to 6 months. The product of the present invention, on the other hand, can be used immediately with no requirement for aging.

Claims 3-6, 8, 9, 12-15, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seike in view of Jackson. The Examiner concedes that Seike does not specifically teach reduction of citric acid. Jackson is said to teach reduction of acidity in grape juice or wine by means of precipitation by adding calcium carbonate and column ion exchange.

This rejection is respectfully traversed. As noted above, Seike teaches away from the present invention. Jackson adds nothing to Seike, because Jackson is silent with respect to citric acid. In fact, the problem with citric acid is not present in the fruit juices

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Jackson treats. It should be noted on page 279, left column, second paragraph, that deacidification primarily entails the neutralization of tartaric acid; malic acid is less involved. There is no mention in Jackson of treating the juice to reduce the content of citric acid, as there is no problem with citric acid in making wine from grape juice, which has a relatively high concentration of tartaric acid and malic acid rather than citric acid. Thus, there is no motivation for one skilled in the art to combine Jackson's treatment of grape juice to reduce tartaric acid to clarify the wines, as much of the sediment in the bottom of a wine barrel is precipitated tartaric acid.

The present application is not at all like the situation described in *In re Levin*, in which the court found that there was no specific cooperation between the selected ingredients. [This case was decided prior to the 1952 patent act]. In the present case, the applicants recognized that excess citric acid interferes with production of vinegar from citrus fruit juices, and devised a way to lower the amount of citric acid in the juice without compromising the quality of the vinegar produced from this juice. Seike teaches what the present applicants have said is unacceptable: adding sodium citrate, an alkaline agent. The present inventors have discovered that removing the citric acid prior to fermentation produces a superior product.

Claims 10 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seike in view of Jackson and further in view of Castillon et al. The Examiner concedes that neither Seike nor Jackson teaches ultra filtration in connection with making vinegar. Castillon et al. are said to teach the ultrafiltration membranes are commonly used to purify vinegar.

This rejection is respectfully traversed. As explained above, Seike

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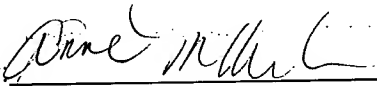
teaches away from the present invention by adding an alkaline material to the juice rather than by physically removing the citric acid or using fruit which has been grown to be naturally low in citric acid. There is nothing in Castillon et al. that teaches or suggests producing vinegar from citrus fruits which have a low concentration of citric acid, which low concentration of citric acid is obtained by methods other than adding alkaline agents to the juice. Jackson adds nothing to Seike, because Jackson is only concerned with producing wine, not with producing vinegar.

The Castillon et al. disclosure of using ultra filtration in wine production adds nothing to Jackson and Seike, because there is still no disclosure or suggestion of producing vinegar from citrus fruit juices which have a reduced citric acid content.

In view of the above, it is respectfully submitted that the claims are now in condition for allowance, and favorable action thereon is earnestly solicited.

Respectfully submitted,

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